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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|-------------------------------|------------------|
| 10/642,908 | 08/18/2003 | Cher Khng Victor Tan | 2269-5163.1US (01-0910.01) | 3189 |
| 24247 | 7590 | 04/15/2005 | EXAMINER ROMAN, ANGEL | |
| TRASK BRITT P.O. BOX 2550 SALT LAKE CITY, UT 84110 | | | ART UNIT 2812 | PAPER NUMBER |

DATE MAILED: 04/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|----------------------------|--|
| Office Action Summary | Application No. 10/642,908 | Applicant(s) TAN ET AL. | |
| | Examiner Angel Roman | Art Unit 2812 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-22 is/are allowed.
- 6) ☒ Claim(s) 23-28 is/are rejected.
- 7) ☒ Claim(s) 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>09/15/04, 11/09/04, 12/10/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The references cited in the information disclosure statements filed 09/15/04, 11/29/04 and 12/10/04 have been considered by the examiner.

Oath/Declaration

2. The Declaration documents filed 08/18/03 are acceptable.

Drawings

3. The Drawings filed 08/18/03 are acceptable.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 23-26, 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Bhatt et al. U.S. Patent 6,426,565 B1.

Regarding claim 23, Bhatt et al. discloses a method for designing a carrier substrate 112, comprising; configuring a substantially planar substrate 112 to include at least one die-attach location 128 on a major surface thereof; and configuring at least one terminal 132 adjacent to the at least one die-attach location 128 and to protrude a sufficient distance from the substantially planar substrate 112 to prevent excess adhesive material 135 forced from between a semiconductor device 134 and the at least one die-attach location 128 from contaminating a connection surface of the at least one terminal 132 (see figure 2).

Regarding claim 24, Bhatt et al. discloses configuring an adhesive-receiving area 116 between the at least one die-attach location 128 and the at least on terminal 132 (see figure 2).

Regarding claim 25, Bhatt et al. discloses configuring the adhesive-receiving area by configuring at least one recess 116.

Regarding claim 26, Bhatt et al. discloses configuring the at least one recess to laterally surround the die-attach location (see column 6, lines 27-37).

Regarding claim 28, Bhatt et al. discloses configuring the at least one terminal too have a height that is at least as great as an elevation at which a bottom surface of the semiconductor device 134 will be supported above a surface of the substantially planar substrate 112.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatt et al. U.S. Patent 6,426,565 B1 in view of Fontecha et al. U.S. Patent 6,448,507 B1.

Bhatt et al. is applied as above but lacks anticipation on configuring the at least one recess to be located adjacent to only a portion of the at least one die-attach location. Fontecha et al. discloses configuring a recess to be located adjacent to only a

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portion of at least on die-attach location; in view of this disclosure, it would have been obvious to a person having ordinary skills in the art at the time the invention was made to configure a recess to be located adjacent to only a portion of at least on die-attach location as disclose in Fontecha et al. in the primary reference of Bhatt et al. in order reduce manufacturing costs by forming recesses near substrate contacts only.

Allowable Subject Matter

9. Claims 1-22 are allowed.

10. Claim 29 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record either in single or in combination failed to anticipate or render obvious the limitations of forming the dam to an elevation that exceeds an elevation of the device-securing region as required by claims1 and 19; configuring a plurality of raised dams, each to be positioned adjacent to and in contact with a periphery of a single, corresponding terminal as required by claim 16; configuring the recessed area surrounding the device securing region as required by claim 17; and configuring the terminal to have an elevation that is, at most, substantially the same as

an elevation at which a top surface of the semiconductor device will be located as required by claim 29.

Response to Arguments

12. Applicant's arguments filed 12/10/04 with respect to the 102 (e) rejection of claim 23 in view of Bhatt et al. have been fully considered but they are not persuasive. Applicants argue that Bhatt et al. does not teach configuring a substantially planar substrate to include at least one die-attach location on a major surface thereof, however Bhatt et al. clearly teaches configuring a substantially planar substrate 112 to include at least one die-attach location 128 on a major surface thereof in the embodiment disclosed in figure 2 and as stated above in paragraph 5.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angel Roman whose telephone number is (571) 272-1681. The examiner can normally be reached on Monday-Friday 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AR
March 8, 2005


MICHAEL LEBENTRITT
SUPERVISORY PATENT EXAMINER